

# VASCULAR LESION DIAGNOSTIC SYSTEM AND DIAGNOSTIC PROGRAM MEMORY STORAGE MEDIUM

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## Abstract of JP2000229078

**PROBLEM TO BE SOLVED:** To precisely mensurate the physical characteristic of a blood vessel wall by analyzing the inner and outer surfaces of the blood vessel wall by a large amplitude displacement motion analyzing means under a limiting condition of making the sum of displacements in one beat of large amplitude displacement motion zero.

**SOLUTION:** An ultrasonic probe 4 is driven by an ultrasonic pulse of  $\Delta T$  period to emit an ultrasonic beam into the body through a body surface 2. The ultrasonic beam is reflected by a blood vessel 3, and transmitted to an ultrasonic mensuration part 5 through the ultrasonic probe 4. Amplification, orthogonal wave detection and A/D conversion are performed there to form a detection waveform showing a tomographic data, which is then inputted to a data analyzing processing part 10. A large amplitude displacement motion analyzing means 11 analyzes the amplitude and phase of a wave detection signal  $V_m(t)$  under the limitation of making the accumulation of displacements within one beat zero to determine the large amplitude displacement motion loci of the inner and outer surfaces of the blood vessel wall accompanied by the heart pulsation. According to this, stable images can be provided to perform a precise measurement.

